RELATION BETWEEN TAIL LENGTH AND TOTAL LENGTH FOR THREE COMMERCIALLY IMPORTANT SPECIES OF PENAEID SHRIMP[1]

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Length measurements of shrimp from commercial landings are an important source of biological information. Total length (tip of telson to tip of rostrum) is the measurement most commonly used, but it cannot be determined directly when fishermen separate shrimp "heads" (cephalothorax) and "tails" (abdomen) before they reach the docks. We determined the relations between tail length (anterior margin of first abdominal segment to tip of telson) and total length so that measurements obtained from headless shrimp could be converted to total lengths.

The relations were based on data from 1,581 brown shrimp, *Penaeus a. aztecus* Ives (86–225 mm., total length); 2,460 white shrimp, *P. setiferus* (Linnaeus) (74–213 mm.); and 1,909 pink shrimp, *P. d. duorarum* Burkenroad (82–194 mm.). The brown and white shrimp were caught off the Texas coast, and the pink shrimp were from the Tortugas grounds off Florida. Measurements were made to the nearest millimeter, and, when possible, equal numbers of shrimp were measured in each 5-mm. total length group.

The relation between tail length and total length appeared to be linear for the range of sizes examined; a straight line was fitted to data for each sex of each species by the method of least squares (figs. 1 and 2). Formulas for the lines are presented in table 1.

Table 1.—*Equations describing the relations between tail length and total length of pink, brown, and white shrimp*

[Y=total length, X=tail length]

Species and sex	Equation	Standard error of regression coefficient	Number measured
Pink:			
Male	Y=8.762+1.547X	0.008	802
	X=−4.041+.632Y	.003	
Female	Y=4.506+1.628X	.005	1,107
	X=−1.923+.607Y	.002	
Brown:			
Male	Y=7.221+1.593X	.009	598
	X=−2.998+.616Y	.003	
Female	Y=−1.085+1.710X	.007	983
	X= 2.029+.576Y	.002	
White:			
Male	Y=5.356+1.623X	.004	1,214
	X=−2.573+.611Y	.002	
Female	Y=2.882+1.672X	.004	1,246
	X=−1.154+.594Y	.001	

[1] Contribution No. 262, Bureau of Commercial Fisheries Biological Laboratory, Galveston, Texas 77550.
Published August 1968.

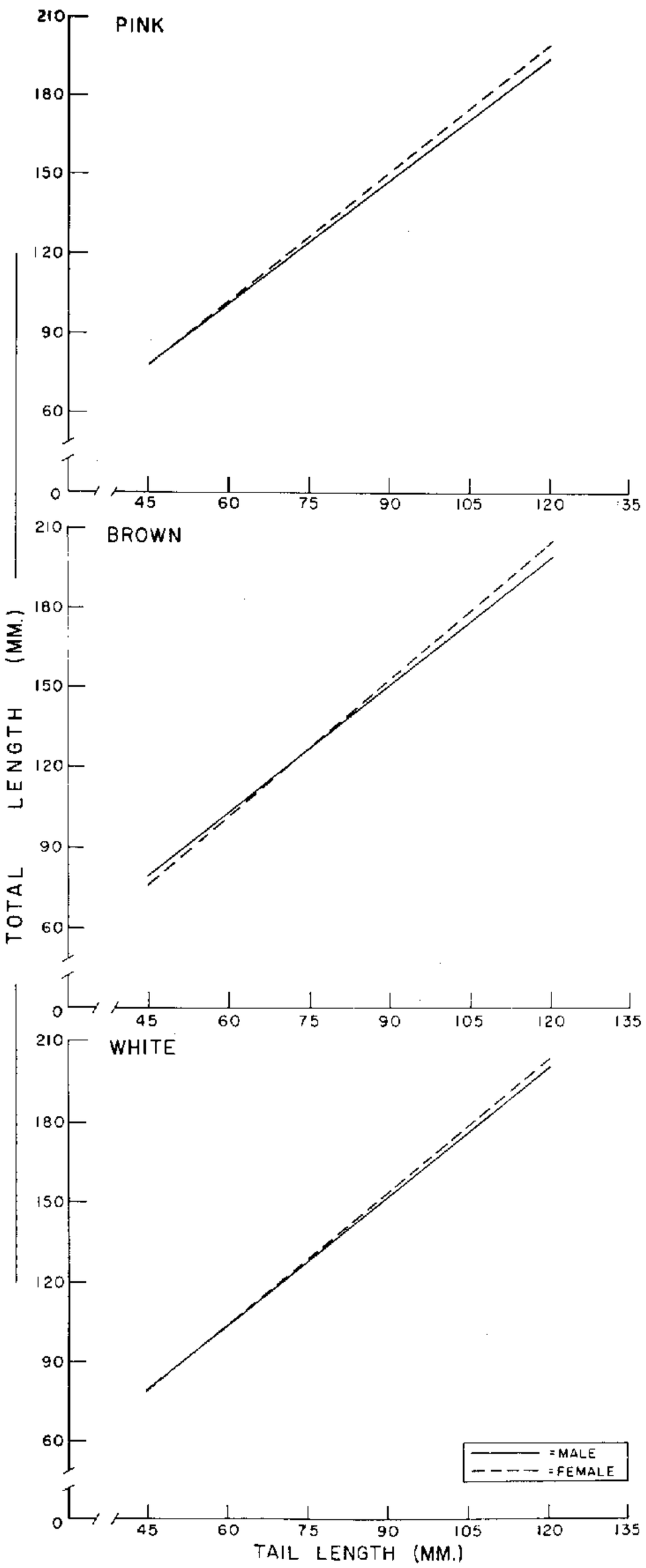

FIGURE 1.—The tail length-total length regression lines for pink, brown, and white shrimp.

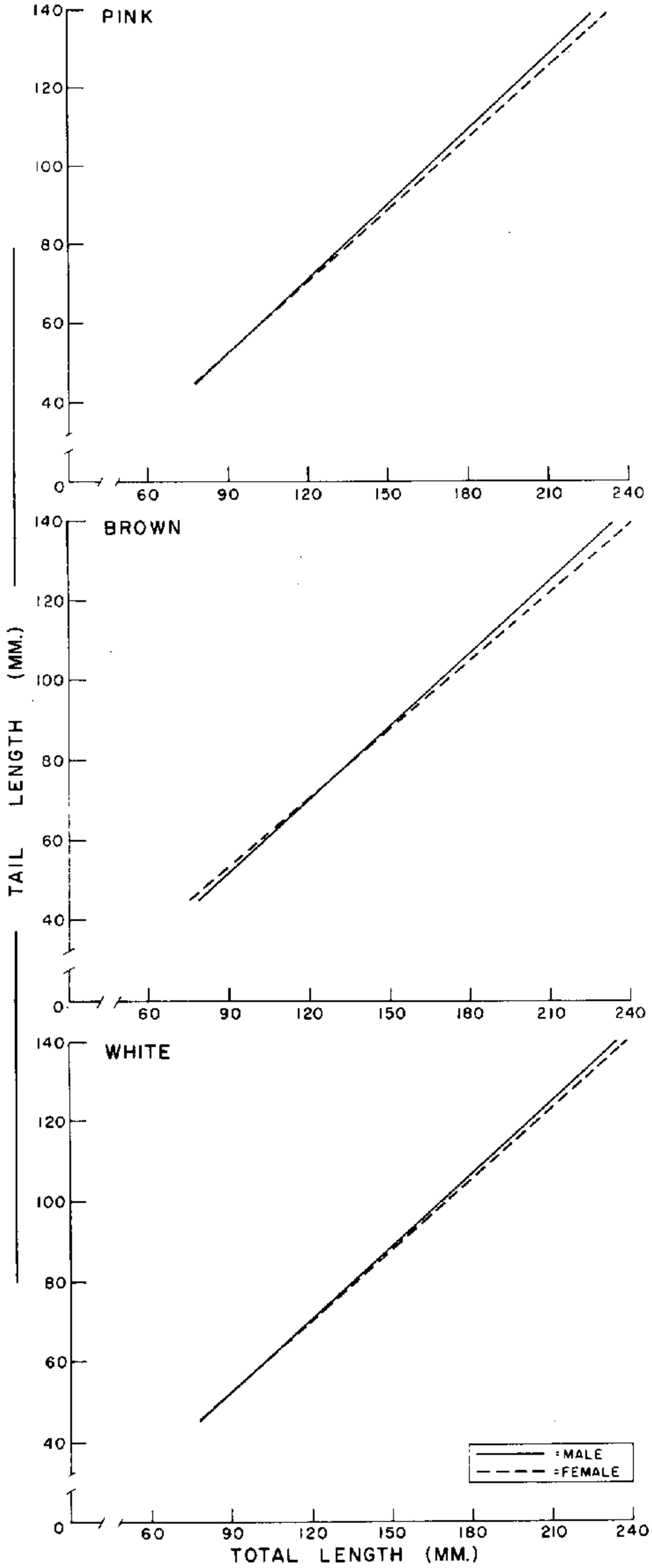

FIGURE 2.—The total length-tail length regression lines for pink, brown, and white shrimp.

U.S. GOVERNMENT PRINTING OFFICE: 1968